

NAG in Finance

➤ Powerful, flexible and accurate algorithms for financial modelling

No other type of software is more critical to finance industry professionals than the numerical functionality underpinning their applications. If they don't have trust in the correctness of their underlying numerical computations how can they trust the output of their financial modelling.

By using NAG's tried, tested and highly regarded numerical and statistical routines for financial modelling, finance professionals can have complete confidence in their results. Furthermore, the comprehensive nature of the NAG Library enables significant competitive advantage to be gained by the addition of sophisticated new functionality to applications.

Built upon proven technical expertise, complemented by comprehensive documentation and continual user-driven development NAG Library routines are the cost-effective answer to faster and better financial computation.

➤ Using the NAG numerical routines for finance strengthens user capability in numerical and statistical areas such as:

- ▶ Optimization – local and global optimization solvers
- ▶ Ordinary and partial differential equations
- ▶ Wavelet transforms
- ▶ Option pricing
- ▶ Partial least squares and ridge regression
- ▶ Nearest correlation matrix
- ▶ Quantiles
- ▶ Mesh generation
- ▶ Roots of nonlinear equations
- ▶ Dense, banded and sparse linear equations
- ▶ Eigenvalue problems
- ▶ Linear and nonlinear least squares problems
- ▶ Special functions
- ▶ Curve and surface fitting and interpolation
- ▶ Large scale eigenproblems
- ▶ Large, sparse systems of linear equations
- ▶ Random number generation
- ▶ Simple calculations of statistical data
- ▶ Correlation and regression analysis
- ▶ Multivariate methods
- ▶ Analysis of variance and contingency table analysis
- ▶ Time series analysis
- ▶ Nonparametric statistics

“The NAG optimization functionality we introduced to our application allows our portfolio managers to fine tune their portfolios in terms of expected return, risk and diversification. We give them the ability to generate many portfolios that trade-off these different characteristics. To enable this we needed routines that were robust, reliable and fast – our user base isn't fond of waiting for the answer! We found that NAG routines offer just this combination of qualities”

David King

Head of Investment Risk at Schroders

nag[®] Results Matter. Trust NAG.

➤ Key features

Mathematical and statistical functionality

NAG's collection of world-class numerical functions are organised into 47 Chapters, each devoted to a mathematical or statistical area. This makes algorithmic selection extremely easy.

Detailed documentation

Each function is accompanied by expert documentation including advice on selection of the best algorithm for specific problems, the interpretation of the results returned and also showing an example of use.

Thread safety

Many of the functions in the NAG Library are thread safe allowing developers of multi threaded applications to have complete confidence in returned data and ongoing computation.

Quality assured

The validity of each function is tested on each of the machine ranges for which the Library is available. Only when an implementation satisfies our stringent accuracy requirements is it released. As a result you can rely on the proven correctness and reliability of the functions to give you the right answers.



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Why should I use NAG Library functions?

Increased productivity

NAG Library functions, written by experts in their field, are renowned for correctness, reliability and robustness making them the perfect choice to solve your problem.

Safeguard and future-proof your application/work

By using the NAG Library algorithms you cut key person dependency inherent if you choose to write your own code. The NAG Library is continually being updated and improved.

Detailed documentation

NAG's documentation is renowned for its detail. Included in each NAG Library function document is an example program users a template for adaptation to their own problems. Decision Trees/Flow Charts make selecting the right algorithm quick and easy.

Ease of use from multiple environments

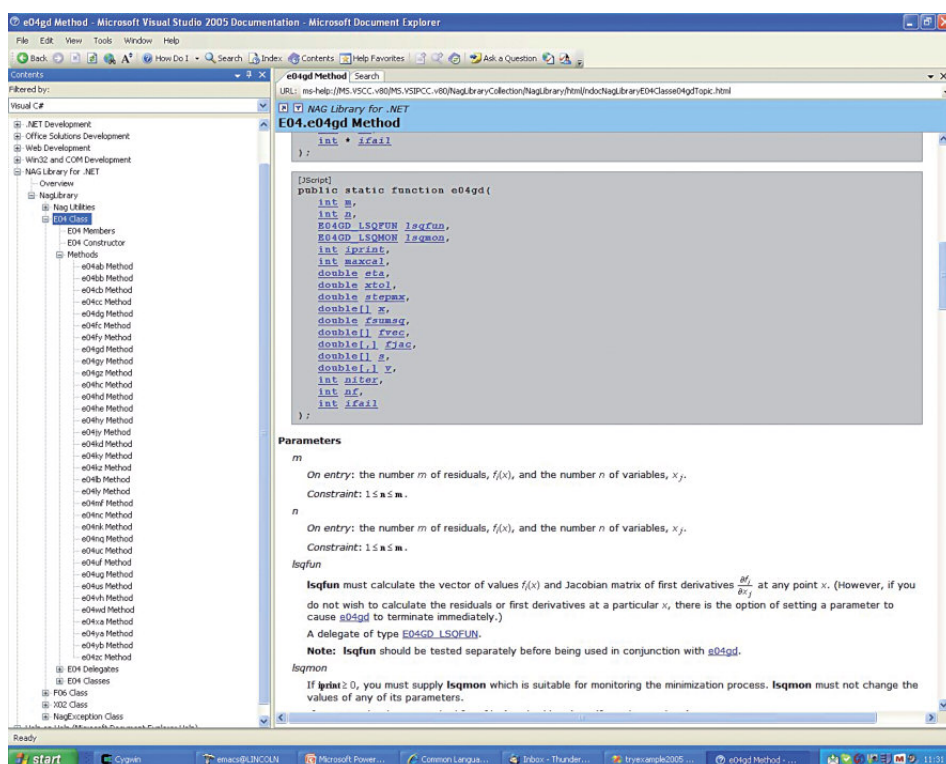
Because NAG Library functions are inherently flexible they are callable from packages and languages such as Microsoft Excel, Java and MATLAB further extending their reach within a department or organization.

NAG's expert support service

By subscribing to NAG's dedicated in-house Customer Support Service, not only will you receive product updates, but you can access via the NAG Response Centre, NAG experts who will assist with your technical queries of difficulties.

NAG's extensive numerical software can help bring quicker solutions in many areas including:

- ▶ Portfolio optimization & enhancement
- ▶ Quantitative analysis
- ▶ Risk management
- ▶ Trend forecasting
- ▶ Index tracking
- ▶ Derivative pricing
- ▶ Option pricing



Screenshot illustrates the NAG Library for .NET Help Screen showing context sensitive help

Contact us

Product availability

NAG Library routines are available on a wide range of systems including: Linux, Microsoft Windows, Mac OS and Solaris and for multiple software packages, programming languages and development environments including: C, C++, Fortran, C#/.NET, VBA, MATLAB, Excel, Java, Python and more.

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